



Center for Veterinary Public Health Newsletter

Department of Health & Mental Hygiene
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Epidemiology and Disease Control Program

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Monkeypox

On June 7, 2003, the Centers for Disease Control and Prevention (CDC) issued an advisory to all states regarding human cases of monkeypox reported from Wisconsin, Illinois, and Indiana. The initial investigation indicated that the human cases had direct or close contact with recently purchased prairie dogs obtained from an Illinois dealer.

Monkeypox virus is an orthopoxvirus and a rare zoonotic disease. Typically the virus occurs in the rain forest countries of Africa; the incubation period is 12 days and the duration of illness is generally 2 to 4 weeks. In humans, monkeypox causes symptoms similar to smallpox: fever, headache, myalgia, vesicles, and a pustular rash. The CDC findings represent the first evidence of monkeypox infection in the Western Hemisphere.

Over 70 human cases of monkeypox are being investigated. Eighteen cases involve veterinarians or veterinary technicians (~20% attack rate) that recently treated ill prairie

dogs. There was one report of a pet owner becoming ill after having contact with their pet rabbit after the rabbit was in a veterinary facility that had treated an ill prairie dog. Many of the infected prairie dogs have experienced fatal infections or have been euthanized. No human deaths have been reported.

Monkeypox transmission may have occurred when Gambian rats and other rodents, recently imported from Africa on April 9, 2003, were in close contact with prairie dogs at an animal dealer facility in IL. From April 15 to early June, the prairie dogs were distributed to the pet trade from IL to 15 different states. Pennsylvania is the closest state to Maryland that received a shipment of these animals.

On June 11, 2003, both CDC and the Food and Drug Administration (FDA) issued a joint order to prohibit the sale, transportation and importation of various rodents to address this situation.

In Maryland, it is illegal to own or sell prairie dogs. Under the Code of Maryland Regulations (COMAR) 08.03.09.03, Rabies Emergency, "[a] person may not import into Maryland any live raccoons, skunks, foxes, wolves, coyotes, bobcats, or any other mammalian wildlife species, or hybrids, for which there is no USDA certified vaccine against rabies." Although illegal, the Center for Veterinary Public Health (CVPH) received notice that a pet store in Delaware sold prairie dogs to 4 different Maryland residents during May 22-25. However, the MD prairie dogs are **not** epidemiologically linked to the IL animal dealer. All four MD families have been contacted; all animals and humans, to date, are healthy.

For additional information please see the CDC web site: <http://www.cdc.gov/ncidod/monkeypox/index.htm>. To view the FDA/CDC Joint Order: <http://www.fda.gov/oc/opacom/hottopics/monkeypox.html>.

the public's health is threatened. For additional information see the Nov/Dec 2002 issue of *FDA Veterinarian* at: <http://www.fda.gov/cvm/index/fdvet/fdavettoc.html>.

- In 2001, the Morbidity and Mortality Weekly Report (MMWR) indicated that 3 different outbreaks of multi-drug resistant *Salmonella* Typhimurium occurred in 1999 within animal facilities in Idaho, Minnesota, and Washington. All outbreaks involved employees or clients of either a small animal veterinary clinic or an animal shelter that

had recently treated felids (both kittens and adult cats) with diarrhea.

Although most human *Salmonella* infections that occur in the United States are food-borne, *Salmonella* can also be transmitted through exposure to contaminated water, reptiles, farm animals, and pets. Even after an animal recovers from an episode of *Salmonella*, fecal shedding may persist for several months. The route of human infection in the above cases is difficult to determine. However, inadvertent ingestion of infected animal feces or food

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Practitioner Alert!

- In recent Food and Drug Administration (FDA) news, thalidomide **cannot** be prescribed by veterinarians due to the health effects of the drug in humans. Historically, thalidomide has been found to cause significant birth defects in humans but has recently been approved for treating leprosy. The drug has also been used to treat various other conditions such as ulcerative colitis, Kaposi's sarcoma, and multiple myeloma. Veterinarians may generally prescribe the extra-label use of human drugs in non-food-producing animals. However, practitioners may **not** prescribe these drugs when

contaminated with animal feces may have occurred.

To prevent salmonellosis, persons should wash their hands after handling raw food and before eating. Veterinary workers should wash their hands thoroughly after handling pets, especially after handling feces. Wearing rubber or disposable gloves will further reduce potential exposures. In addition, eating, drinking, and smoking should **not** be allowed in animal treatment or holding areas.

For the complete text of this article, see <http://www.cdc.gov/mmwr/PDF/wk/mm5033.pdf>.

Valuable Veterinary Resources

• The Centers for Disease Control and Prevention (CDC) recently developed a booklet that contains tips on the prevention and control of **hantavirus pulmonary syndrome (HPS)**. Topics include rodent control and appropriate clean-up activities in response to a known infestation. Although Maryland has yet to experience a case of locally acquired HPS, this brochure may be helpful for interested individuals or those who may travel to HPS-endemic areas. CVPH has a limited supply of these booklets; contact our office at 410-767-5649 for a copy. In addition, CDC offers a toll-free hantavirus hotline at 1-877-232-3322 that contains recorded messages that are available 24 hours/day, 7 days/week.

• The Emerging Infectious Diseases (EID) journal, published by CDC, is a wonderful resource for veterinary public health and zoonotic disease issues. This free, bi-monthly publication is available online through the CDC web site (<http://www.cdc.gov/ncidod/EID/index.htm>) or in hard copy by request. Some recent articles included: anthrax of the gastrointestinal tract, human exposure following *M. tuberculosis* infection of animals in a zoo, rabies and increased viral infectivity, tularemia on Martha's Vineyard, B-virus in monkeys, and foot and mouth disease. The October 2002 issue was devoted to bioterrorism-related anthrax. Check the website today for more zoonotic disease topics of interest!

• For veterinarians that participate in health fairs, provide education to local schools, or have an annual open house, you may want to consider displaying and using some public health information available from CVPH. We have many items available for loan such as rabies videos, Lyme disease videos, slides for presentations, rabies posters, and various brochures (West Nile virus, hantavirus, safe reptile handling, mosquito control, etc). Contact our office at 410-767-5649 to request any of these items or to inquire about how we may assist you in providing accurate zoonotic disease information to the public during a community event.

Legislative Update

• Legislators were busy in 2003 addressing numerous animal-related issues. CVPH was asked to provide comments on a few of them. Some topics presented to both the House and Senate included debarking of dogs (HB 355), steel-leg hold traps (HB 365), killing and poisoning of kittens (HB 612), cock-fighting and dog fighting (HB 624), ferret protection (HB 624), and swine confinement (HB 755).

For an update on legislative issues, especially

those that pertain to animals, visit the following web site: <http://www.mlis.state.md.us/#bill>. If you know the number of the House or Senate Bill, scroll down to "Bill Information and Status" and enter the number. Or go to the section "Bill Indexes" and click on the second link, "One or Two Subjects," then choose "Animals" from the drop down menu.

• Animal regulations were recently moved within the Annotated Code of Maryland. For a complete list of Maryland regulations regarding animals, see Title 10, subtitle 6, "Crimes

Relating to Animals" at the following web site:

<http://198.187.128.12/maryland/lpext.dll?f=templates&fn=fs-main.htm&2.0>. Open "Maryland Code," scroll down to "Criminal Law," then scroll to "Title 10 – Crimes Against Public Health, Conduct and Sensibilities," then scroll to "Subtitle 6 – Crimes Relating to Animals." Information of interest may include 10-619, dangerous dogs; 10-622, injuring or trapping of a carrier pigeon; 10-614, transfer or coloring of a chick (especially helpful during Easter), among others.

Maryland Arbovirus Surveillance Program 2002



The Maryland Departments of Health & Mental Hygiene (DHMH), Agriculture (MDA), and Natural Resources (DNR) conducted active arbovirus surveillance in humans, mosquitoes, avians, and equines from May 8 through October 31, 2002. The Department of Defense (DoD) and the Baltimore Zoo also implemented independent WNV surveillance programs, and those results are included in this summary as well. West Nile virus (WNV) activity in Maryland increased dramatically in 2002, having already been established as endemic during the previous year. Final surveillance findings for WNV and other arboviruses detected in Maryland in 2002 are highlighted below.

Human:

- 36 human WN cases out of 801 Maryland residents tested (4.5%) were identified in 9 jurisdictions.
- The median age of cases was 56 years (age range: 28 to 87 years).
- Onset dates of cases ranged from July 22 to October 2, 2002.
- 7 individuals out of 36 (19%) died due to WNV (age range: 54-87 years; median age: 69 years).

Avian:

- 641 birds out of 1821 tested were posi-

tive for WNV in 23 jurisdictions:

- 604 dead birds out of 1634 tested (37%) were positive from DHMH's surveillance program.
- 3 dead birds out of 9 tested (33%) were positive from DNR's surveillance program.
- 23 dead birds out of 74 tested (31%) were positive from DoD's surveillance program.
- 11 birds out of 104 tested (11%) were positive from the zoo collection (9 WNV-antibody positive; 2 virus positive).

Equine:

- 29 WN equine cases out of 88 tested (33%) were identified in 9 jurisdictions; 1 horse had an equivocal result.
- Of the 29 WNV-positive horses, only 5 were immunized to protect against WNV. Only 1 horse received the complete 2 dose vaccination series; the remaining 4 horses received only 1 dose.
- 13 of the 29 equine cases (45%) died; only 2 of those fatal cases were immunized. However, both horses received only 1 dose of WNV vaccine.

Mosquito:

- 117 mosquito pools out of 9364 pools tested (1.3%) were positive for WNV in 7

jurisdictions:

- 46 mosquito pools from MDA's surveillance program.
- 71 mosquito pools from DoD's surveillance program at the following installations: Andrews Air Force Base, Fort Detrick, Fort Meade, and the National Naval Medical Center.
- In addition, 3 mosquito pools tested positive for Cache Valley virus (CVV): 2 pools in Anne Arundel County and 1 pool in Howard County. CVV is a bunyavirus that has been associated with prenatal morbidity in North American ruminants. This is the first time CVV has been reported in Maryland.

With the exception of Cache Valley virus, no other arboviruses of public health concern were detected in Maryland in 2002. This includes the viruses that cause eastern equine encephalitis, LaCrosse encephalitis, and St. Louis encephalitis.

For complete 2002 summary information of WNV surveillance activities in Maryland please visit the following websites:

DHMH:

http://edcp.org/html/west_nile.html

MDA:

<http://www.mda.state.md.us>

Human Rabies 2002

In the United States in 2002, 3 human fatalities due to rabies occurred in California, Tennessee, and Iowa. All three cases were due to bat-strain variants. The California case involved a 28 year-old man with a history of killing a bat in his home in early March 2002. The bat was not tested for rabies. In mid-March, the patient was seen by a health care provider complaining of headache, photophobia, numbness, nausea, and vomiting. He was initially discharged following symptomatic treatment but then returned to the emergency room with increasing symptoms. The patient eventually died after becoming comatose. Rabies was diagnosed by the Centers for Disease Control and Prevention (CDC); the virus was Mexican free-tailed bat strain. Further investigation identified a bat colony in the patient's home attic. The incubation period of rabies is typically weeks to months. Therefore, it is unlikely that the known bat exposure one week prior to the onset of symptoms was the source of this man's exposure. With the identification of a bat colony in the home, other exposures seem more likely.

The Tennessee case involved a 13 year-old boy. In early July, while returning home from a local lake, the boy found an ill bat and brought the animal home. The bat was released the next day; the child never reported being bitten by the bat. Approximately 7 weeks later, the child complained of headache, neck pain, and right arm numbness and weakness. Within one week his symptoms progressed to ptyalism, agitation, and decreased mental status. The patient was dis-

connected from life support and died on August 31. Rabies was diagnosed on saliva, nuchal skin biopsy, and serum samples from the patient; the virus was identified as Eastern pipistrelle and silver-haired bat strain. Although the family was aware that the boy had brought home a bat, they did not know that bats might be rabid and transmit the disease to humans. Therefore, following this exposure, the family did not seek medical care or counseling for the boy. This is only the second report of a human rabies fatality in TN since 1955.

The Iowa case involved a 20 year-old man. In mid-September, this individual sought medical care for nausea, vomiting, abdominal pain, and back stiffness. He was symptomatically treated and sent home. The next day he returned to the hospital with worsening symptoms, including hostility, paranoia, and hallucinations. Within two days, the patient required ventilatory support but was considered brain-dead within a week. The patient died once support was withdrawn. Rabies was diagnosed on a nuchal skin biopsy specimen by CDC. The virus strain was one associated with Eastern pipistrelle and silver-haired bats. However, the patient's source of exposure remains uncertain. There were no reports from the family of bat exposure and no bats within the home. The patient was a musician and traveled frequently, with an active evening social life. Unfortunately, the family was not able to provide all contact information for many of the patient's associates who may have been able to remember a bat expo-

sure incident. This is the first case of human rabies in Iowa since 1951.

The last human case of rabies in Maryland occurred in 1976 in a 55 year-old Cecil County woman. The individual had a known exposure to a rabid bat and received the appropriate treatment (at that time, 21 daily doses of duck embryo vaccine and rabies immune globulin). The treatment was well tolerated by the patient. However within a month of the initial bat bite, the patient developed symptoms of weakness, vomiting, abdominal pain, and decreased sensation of her hand and arm. Three weeks later, while hospitalized, the patient expired following cardiac arrest. Rabies was diagnosed on a corneal impression and nuchal skin biopsy. Several other rabid bats were found in the area where the woman lived. Therefore, it is uncertain whether her infection was actually due to the known bite she experienced, some other unrecognized exposure, or vaccine failure.

The Center for Veterinary Public Health (CVPH) will continue to promote rabies awareness, especially involving bat exposures. Please refer all bat exposures to your local health department so that health officials can perform a risk assessment to determine the need for rabies post-exposure prophylaxis. In addition, please be aware that all bat species in Maryland are protected under the Maryland Department of Natural Resources (DNR), Annotated Code of Maryland. The trapping and extermination of bat colonies is strictly prohibited. To receive additional information or for any questions on bats, contact DNR at 410-260-8540.

The booklet entitled **Bio-Terrorism Agents: Implications for Animals 2001**, developed by the Maryland Department of Agriculture (MDA) in collaboration with DHMH and other agencies is now available on the Internet: <http://www.mda.state.md.us/vet/animlimp.pdf>

Our web site has a new look! Access veterinary public health information at http://www.edcp.org/html/vet_med.html. There is even a link especially for veterinarians! Check back frequently since we are adding new features almost daily.

The **Maryland Horse Industry Board** recently published the results of the 2002 Maryland Equine Census. According to the Board, a total of 87,100 horses, mules, donkeys, and burros reside in the State. The Counties with the highest and lowest number of horses are Baltimore and Allegany, respectively. The total value of the equine industry in Maryland is estimated to be around \$680 million. Access the following web site for more specific information: <http://www.marylandhorseindustry.org>.

BARF

Recently the Food and Drug Administration (FDA) addressed the public health-associated concerns that involve the feeding of dogs and cats a diet of bones and raw foods (BARF). Because these diets are raw they may be contaminated with salmonella and other zoonotic disease-causing organisms. The FDA does **not** consider raw meat diets to be consistent with the goal of protecting the public from significant health risks when such diets are fed to domestic companion animals. See the Jan/Feb 2003 issue of the *FDA Veterinarian*, at <http://www.fda.gov/cvm/index/fdavet/fdavettoc.html> for more information.

In addition, CDC has recently stated that animals fed such a diet should not be permitted to be around immunocompromised individuals. A dog or cat that has just eaten raw chicken may have salmonella in its saliva and may transmit this organism via licking or playing with toys. Any animal fed such a diet may also shed salmonella in its feces, in the same manner as a reptile, thereby increasing the risk of disease transmission to humans. The CVPH supports the CDC recommendations and advises all veterinarians to inquire and advise about the diet fed to companion animals, especially if there is a concern that an immunocompromised individual is in the home with the pet. Pets on a BARF

diet should **not** participate in any Pets on Wheels programs, or any other visitation program to nursing homes, long-term care facilities, children's hospitals, or facilities that may have immunocompromised populations. For additional information, see the Healthy Pets/Healthy People web site at <http://www.cdc.gov/healthypets> or visit the CVPH web site at <http://edcp.org>.

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We're on the Web:
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- Kimberly Mitchell, MPH. West Nile Virus Coordinator; 410-767-6618.
- Janet Brown, Secretary (temporary); 410-767-5649.

Things Worth Repeating!

- Ensure that you and your staff are properly immunized to protect against rabies exposures by receiving rabies pre-exposure prophylaxis (pre-EP). Pre-EP consists of 3 rabies vaccinations: one each on days 0, 7, and 21 (or 28). An additional reminder: rabies titers should be checked **every two years**. Many local health departments provide one or both of these services for at-risk individuals. Titers are free for MD residents!
- When examining an unfamiliar, stray, or feral animal, wear gloves to protect against potential non-bite rabies exposures. This is especially important when the client tells you that the animal just got into a fight with a wild animal or had an altercation with a known rabid animal.



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Chronic Wasting Disease (CWD) Update

To survey for CWD within Maryland deer, the Maryland Department of Natural Resources (DNR) tested 309 deer from 8 jurisdictions during the fall of 2002 and winter of 2003. All brainstem specimens have been analyzed and **none** tested positive for CWD. DNR will continue its surveillance efforts in 2003.

Animal Bite Data

In 2000, Maryland jurisdictions reported a total of 10,346 animal bites to humans. This number yields an incidence rate of 195 bites/100,000 people and represents an increase over the reported cases from 1999. Most of the bites were due to dogs (71%) or cats (25%). The remaining bites were associated with a myriad of other species including squirrels, rabbits, ferrets, raccoons, birds, snakes, and bobcats. In addition, 1,340 non-bite exposures occurred. To address the animal bite issue within Maryland, veterinarians are encouraged to report all animal bites to their respective health departments (as required by the Code of Maryland Regulations, COMAR 10.06.02.05), and to participate in any community, school, or county activity to disseminate bite prevention information. The CVPH will continue to promote Dog Bite Prevention Week (generally occurs in May) and to provide resources to local health department staff to address this significant public health concern. For additional information see our web site at <http://www.edcp.org> for the 2000 annual report on animal bites. Reports detailing 2001 and 2002 data will be available soon. For specific information on dog bite prevention, see: <http://www.avma.org/pubhlth/dogbite/>.

West Nile Virus 2003

New guidelines have been established for arboviral surveillance, prevention, and control in 2003. West Nile virus (WNV) surveillance activities will consist of active surveillance of mosquitoes, horses, and humans. **Dead bird surveillance is currently not occurring due to the enzootic nature of West Nile virus in the State.** Because WNV is now firmly established in Maryland and is expected to return each year, collection, pick-up, and testing of dead birds, which was performed primarily as a surveillance tool, may no longer be practical.

NEW! Two new products are available from CVPH. (1). A brochure on WNV in equines, developed for horse owners, includes data on the prevalence of WNV in equine populations, clinical signs of WNV infection in horses and important measures that horse owners can take to reduce a horse's risk of infection. Two brochures have been included in this newsletter. Additional copies can be obtained by contacting the Center for Veterinary Public Health at 410-767-5649 for supplies. (2). A new laboratory form for the submission of equine samples for diagnostic testing is also available. The laboratory form is available on our web site: http://www.edcp.org/html/west_nile.html.

The 2003 National Association of State Public Health Veterinarians Compendium of Animal Rabies Prevention and Control is now on the American Veterinary Medical Association web site at: <http://www.avma.org/pubhlth/rabcont.asp>. The CVPH also has hard copies of the document available. Contact us at 410-767-5649 for supplies.

Please contact our office with any comments regarding this newsletter or with any topics that you would like to see in the next issue.